PATENT ABSTRACTS OF JAPAN

(11)Publication number : 2001-088267
(43)Date of publication of application : 03.04.2001

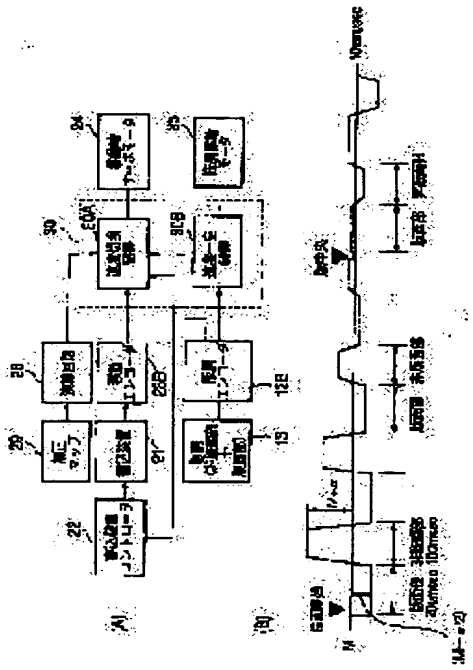
(51)Int.Cl. B41C 1/055
B41F 7/02
B41F 33/08

(21)Application number : 11-271434
(22)Date of filing : 24.09.1999

(71)Applicant : MITSUBISHI HEAVY IND LTD
(72)Inventor : KACHI MAKOTO

(54) ON-PRESS PLATE MAKING SHEET TYPE PRINTING MACHINE

(57)Abstract:
PROBLEM TO BE SOLVED: To provide an on-press plate making sheet type printing machine which can make inter-color directions coincide easily by making a pattern of each color printed in each printing station correspond to respective fan-outs even when the amount of fan-out is different in respective printing stations of each color.
SOLUTION: In an on-press plate making sheet type printing machine, a control means in which the rotating speed of a plate cylinder and the moving speed of a writing device can be controlled by synchronization with the beam output timing of the writing device is provided, the rotating speed of the plate cylinder and the moving speed in the sub-scanning direction of the writing device are controlled so that, with advance from the starting side in the sub-scanning direction to terminal side of the plate cylinder, a relative movement speed to the plate cylinder of the writing device is increased on the plate surface part 13A side and decreased on the non-plate surface part 13B side, the relative movement speed to the plate cylinder of the writing device in each station of each color is changed reverse-proportionally between the plate surface part 13A and the non-plate surface part 13B, and the quantity of the speed change is changed in turn from the upstream side toward downstream side of each station.



LEGAL STATUS

[Date of request for examination] 27.05.2002

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

CLAIMS

[Claim(s)]
[Claim 1] In the on-board platemaking single-wafer-processing printing machine which comes to prepare the movable beam write-in equipment for platemaking for this plate cylinder shaft and parallel (the direction of vertical scanning), meeting the printing cylinder with which the printing plate section and the non-printing plate section exist in a peripheral surface While establishing the control means which was synchronized with the beam output timing of said write-in equipment, and constituted the rotational speed of said printing cylinder, and the passing speed of write-in equipment controllable, respectively and setting each write-in starting position for every printing cylinder rotation period on a printing plate as the same spacing Take for progressing to a termination side from the direction start edge side of vertical scanning of said printing cylinder, and the relative movement rate to the printing cylinder of said write-in equipment so that a rate may change almost in inverse proportion between the printing plate section and the non-printing plate section The on-board platemaking single-wafer-processing printing machine characterized by controlling the rotational speed of a printing cylinder, and the passing speed of the direction of vertical scanning of write-in equipment.
[Claim 2] The on-board platemaking single-wafer-processing printing machine according to claim 1 characterized by controlling the rotational speed of a printing cylinder, and the passing speed of the direction of vertical scanning of write-in equipment so that the relative movement rate to the printing cylinder of said write-in equipment may be increased by the printing plate section side and it may decrease by the non-printing plate section side.
[Claim 3] the increase [as opposed to / using a center position as a criteria rate mostly / the printing cylinder of said write-in equipment to a boundary] of a relative movement rate of said printing cylinder -- moderation -- balance -- the on-board platemaking single-wafer-processing printing machine according to claim 2 characterized by making it differ.
[Claim 4] The on-board platemaking single-wafer-processing printing machine characterized by having turned the rate variation to the downstream and changing it one by one from the upstream of each station in the on-board platemaking single-wafer-processing multicolor printing machine according to claim 1 which comes to have said beam write-in equipment for platemaking for every printing station of each color while carrying out rate change of the relative movement rate to the printing cylinder of the write-in equipment for said every station in inverse proportion between the printing plate section and the non-printing plate section.
[Claim 5] In an on-board platemaking single-wafer-processing printing machine according to claim 1 The angle-of-rotation detection means of a printing cylinder, The passing speed detection means of the direction of vertical scanning in the beam write-in equipment for platemaking, and a timing detection means to detect the write-in timing to the printing plate for every one printing cylinder revolution period, It has a speed-control means to control one [at least] drive rate of said printing cylinder or write-in equipment based on the signal of said timing detection means. The on-board platemaking single-wafer-processing printing machine characterized by having changed said speed-control means, and controlling the relative movement rate to the printing cylinder of said write-in equipment based on the detection signal of said timing detection means so that a rate changes in inverse proportion between the printing

plate section and the non-printing plate section.
[Claim 6] The rate change in the printing plate section from said non-printing plate section and the rate change in the non-printing plate section from said printing plate section are an on-board platemaking single-wafer-processing printing machine according to claim 4 characterized by carrying out based on the detection signal from a timing detection means to detect the write-in initiation / telophase timing to the printing plate for every one printing cylinder revolution period, or the detection signal from the angle-of-rotation detection means of a printing cylinder.

[Translation done.]

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to the on-board platemaking single-wafer-processing printing machine equipped with two or more bodies of a printing machine which are applied to the on-board platemaking single-wafer-processing printing machine which engraves for the version wound on the printing cylinder on the printing machine, especially are printed and which contain a printing cylinder and an impression cylinder for ink each color of every.
[0002]
[Description of the Prior Art] The feed equipment delivered to the body side of a printing machine while adding at a time one sheet of print sheet which is in a laminating condition conventionally and accelerating, It is arranged between the delivery equipment which carries out the laminating receipt of the print sheet after printing termination, and this feed equipment and delivery equipment. Into the pattern part of the lithographic plate currently wound around the printing cylinder from the ink feeder, cyanogen, The ink in which MAZENDA, yellow, or black corresponds is transferred. The single-wafer-processing printing machine which carries out sequential transition of this ink at the print sheet currently conveyed on the impression cylinder is well-known. To this printing machine The station mold printing machine which is equipped with four printing stations containing a printing cylinder and an impression cylinder for every color of cyanogen, MAZENDA, yellow, and black, and carries out sequential transition of said each color has (****** 6-507353 grade) in use.
[0003] And among such printing machines, in order to use dampening water especially in the offset press, generally the fan-out phenomenon of a form in which the printing image of **** spreads in a flabellate form arises with the ununiformity of the content moisture of a print sheet, or front-face nature. Since it is what is conveyed while making it deliver to the next printing station one by one through a middle drum, holding the tip of a print sheet to which ** was also supplied from the feed section in the printing machine of a multi-printing station mold by the pawl of an impression cylinder, the amounts of fan-outs differ the whole station.
[0004] more -- concrete -- 1st printing station 13C (for example, cyanogen) and the 2nd -- the hips of a form spread gradually in order as it progresses to printing station 13M (for example, MAZENDA) and 3rd printing station 13Y (for example, yellow) and 4th printing station 13B (for example, black). (Refer to drawing 3 (B))
[0005] Although the lithographic plate used for the above-mentioned printing machine on the other hand has attached in the printing cylinder of a printing machine what was created from the former in somewhere else It is based on the improvement in lithographic plate printing precision in recent years, and ****. For the purpose, such as compaction of time amount, improvement in printing quality, and reduction of maculature The on-board platemaking equipment which uses said platemaking equipment for the unexposed ** material attached in the printing cylinder front face, and exposes and develops a printing pattern on a printing machine with the platemaking equipment made [the printing cylinder of each printing station] to carry out confrontation arrangement, respectively exists.
[0006] And such platemaking equipment is what records a picture signal on a plate using beam

write-in equipments, such as laser which moves in parallel with a printing cylinder 13 with the migration shaft 23. Moving synchronous rotation (main scanning direction) of a printing cylinder 13 and the shaft orientations (the direction of vertical scanning) of write-in equipment 21 with the migration shaft 23 according to the output timing of the exposure signal (raster data) outputted from write-in equipment 22 Since it is what performs an exposure store, the pattern (bit data) written in printing plate 13A twisted around the printing cylinder 13 will be written in in the direction of slant in the shape of a spiral. (Refer to drawing 3 (A))

[0007] On the other hand, since the pattern written in on said printing plate makes it to a rule [reproduce / said raster data / as faithfully as possible], it serves as the same scale as manuscript former data.

[0008]

[Problem(s) to be Solved by the Invention] That is, although the amounts of fan-outs differ for every printing station, since a printing plate is created by the same scale, the pattern of each color printed the whole printing station brings a result from which the aim between colors shifts by each fan-out.

[0009] in order to amend a gap of the aim between these colors -- the former -- a fan-out -- the case where the printing cylinder right-and-left width of face of ******** corresponding to said amount of fan-outs is 900mm although the hips side of said **** is extended using vice and he is trying to double the aim between colors -- the -- extending -- since there are very few amounts as 200-micrometer [a maximum of] order -- the adjustment -- skill -- ****.

[0010] This invention aims at offering the on-board platemaking printing machine which can make the pattern of each color printed the whole printing station able to respond to each fan-out, and can make the aim between colors in agreement easily, also when the amounts of fan-outs differ in view of the starting technical technical problem for every printing station of each color, such as cyanogen, MAZENDA, yellow, and black.

[0011]

[Means for Solving the Problem] In order that this invention may solve this technical problem, invention according to claim 1 In the on-board platemaking single-wafer-processing printing machine which comes to prepare the movable beam write-in equipment for platemaking for this plate cylinder shaft and parallel (the direction of vertical scanning), meeting the printing cylinder with which the printing plate section and the non-printing plate section exist in peripheral surface While establishing the control means which was synchronized with the beam output timing of said write-in equipment, and constituted the rotational speed of said printing cylinder, and the passing speed of write-in equipment controllable, respectively and setting each write-in starting position for every printing cylinder rotation period on a printing plate as the same spacing It is characterized by controlling the rotational speed of a printing cylinder, and the passing speed of the direction of vertical scanning of write-in equipment so that it may take for progressing to a termination side from the direction start edge side of vertical scanning of said printing cylinder and a rate may change the relative movement rate to the printing cylinder of said write-in equipment almost in inverse proportion between the printing plate section and the non-printing plate section. in this case, the thing which it is carried out in order that the amount of amendments for controlling the above-mentioned passing speed may amend the physical quantity of a fan-out, and can not necessarily be approximated with a linear function -- not restricting -- double -- the amount of amendments may be determined using degree function or the table corresponding to the physical quantity of a fan-out.

[0012] That is, like invention according to claim 2, the rotational speed of a printing cylinder and the passing speed of the direction of vertical scanning of write-in equipment may be controlled, and the reverse is more specifically sufficient so that the relative movement rate to the printing cylinder of said write-in equipment may be increased by the printing plate section side and it may decrease by the non-printing plate section side. Furthermore, the balance of accelerating/moderation of said relative movement rate writes in, and equipment changes from the core of a printing cylinder with a driving side (main scanning direction start edge side) or actuation one end (main scanning direction termination). As shown in drawing 5 , namely, when [of said printing cylinder] a center position is mostly carried out as a criteria rate (mean

velocity Av), a write-in equipment location -- each location with "a drive end +10", "a drive end +100", a "center", "a final control element +10", and "a final control element +100" -- setting -- the -- an increase -- moderation variation As shown in "Av-100", "Av-10", "Av**0", "Av+10", and "Av+100", change to a printing plate section relative-velocity side, and on the other hand, it sets to a non-printing plate section relative-velocity side. It changes, as shown in "Av+250", "Av+215", "Av**0", "Av-215", and "Av-250." that as which invention according to claim 3 specified this point -- it is -- the increase [as opposed to / using a center position as a criteria rate mostly / the printing cylinder of said write-in equipment to a boundary] of a relative movement rate of said printing cylinder -- moderation -- balance -- it is characterized by making it differ.

[0013] Invention according to claim 4 is the thing which makes said beam write-in equipment for platemaking apply to the on-board platemaking single-wafer-processing multicolor printing machine according to claim 1 which it comes to have for every printing station of each color. While carrying out rate change of the relative movement rate to the printing cylinder of the write-in equipment for said every station in inverse proportion between the printing plate section and the non-printing plate section, it is characterized by having turned the rate variation to the downstream and changing it one by one from the upstream of each station.

[0014] Invention according to claim 5 is what shows the concrete configuration in an on-board platemaking single-wafer-processing printing machine according to claim 1. The angle-of-rotation detection means of a printing cylinder, and the passing speed detection means of the direction of vertical scanning in the beam write-in equipment for platemaking, A timing detection means to detect the write-in timing to the printing plate for every one printing cylinder revolution period, It has a speed-control means to control one [at least] drive rate of said printing cylinder or write-in equipment based on the signal of said timing detection means. It is characterized by having changed said speed-control means, and controlling the relative movement rate to the printing cylinder of said write-in equipment based on the detection signal of said timing detection means, so that a rate changes in inverse proportion between the printing plate section and the non-printing plate section.

[0015] It is characterized by for invention according to claim 6 to be what materialized the change timing part of said invention, to perform the rate change in the printing plate section from said non-printing plate section based on the detection signal from a timing detection means to detect the write-in initiation timing to the printing plate for every one printing cylinder revolution period, and to perform the rate change in the non-printing plate section from said printing plate section based on the detection signal from the angle-of-rotation detection means of a printing cylinder. In addition, the timing change of this invention is not necessarily limited only to said configuration, and the rate change in the printing plate section from said non-printing plate section may also perform it based on the detection signal from the angle-of-rotation detection means of a printing cylinder, and the rate change in the non-printing plate section from said printing plate section may be performed based on the detection signal from a timing detection means to detect the telophase timing of write-in to the printing plate for every one printing cylinder revolution period.

[0016]

[Embodiment of the Invention] Hereafter, this invention is explained to a detail using the example shown in drawing. However, the dimension of the component part indicated by this example, a configuration, its relative configuration, etc. are not the meaning that limits the range of this invention only to it but only the mere examples of explanation, as long as there is no specific publication especially.

[0017] Drawing 2 is the outline block diagram of the on-board platemaking equipment concerning the operation gestalt of this invention. 1 Transfer ink to the pattern part of the lithographic plate 130 currently wound around the printing cylinder 13 from the ink feeder 11, and this ink by the body 1 of a printing machine transferred to the print sheet currently conveyed on the impression cylinder 14 Cyanogen, MAZENDA, yellow, and the printing machine station 1 for every color of black are located in a line in the shape of a serial, and conveying a print sheet to the impression cylinder 14 of the following body 1 of a printing machine on both sides of a middle drum, it is

constituted so that four colors may be printed.
[0018] Cyanogen, MAZENDA, yellow, and the body 1 of a printing machine for every color of black transfer the ink which the pattern part of a lithographic plate 130 was made to transfer from the platemaking equipment 2 which carried out confrontation arrangement, and the ink feeder 11 through a blanket cylinder 15 at an impression cylinder 14 to the corresponding ink feeder 11 of a color, the printing cylinder 13 around which **** 130 was made to loop, and a printing cylinder 13, and printing is performed [in the supplied print sheet] in response to ink from a blanket cylinder 5 on an impression cylinder 6. On the other hand, with the platemaking equipment 2 made [the printing cylinder 13] to carry out confrontation arrangement, the above-mentioned lithographic plate 12 uses said platemaking equipment 2 for unexposed **** 130 attached in printing cylinder 13 front face or printing cylinder 13 front face, exposes and develops a printing pattern on a printing machine, and consists of a write-in equipment controller 22 which controls laser write-in equipment 21 and this write-in equipment 21.
[0019] The write-in equipment 21 which meets a printing cylinder 13 is what can be burned on a lithographic plate 130 in the dot pattern corresponding to raster data using laser. When it consists of a laser aligner, a developer, an anchorage device, etc. and exposes to unexposed **** 130 in the above-mentioned platemaking mode, It exposes moving said write-in equipment 21 in the direction of vertical scanning (direction parallel to plate cylinder shaft 12 direction) according to exposure signal output timing by synchronous rotation of a printing cylinder 13 and rotation of the migration shaft 23 which is supporting said write-in equipment 21. In order to obtain the dot pattern of accurate printing plate 13A at this time, the rotation pulse of a printing cylinder 13 and the crosswise location pulse of said migration shaft 23 are incorporated by the write-in equipment controller 22 side, and it outputs to the semiconductor-laser transmitter in said write-in equipment 21, taking the drawing data (raster data) and the synchronization which were read to the serial from the data server 31 in a control device 3, and performing that location amendment and output amendment.
[0020] As shown in drawing 1 (A) and drawing 2 , in addition, the angle-of-rotation pulse (rotation phase angle) of a printing cylinder 13 It is acquired with high precision by the angle-of-rotation signal from printing cylinder encoder 12B prepared in the axis end of the printing cylinder drive motor 25 attached in the plate cylinder shaft 12. Moreover, the crosswise location pulse (the direction of vertical scanning) of said migration shaft 23 is acquired with high precision by the rotational frequency and rotation phase angle of encoder 23B which were prepared in the axis end of the servo motor 24 grade which drives the axis end of said migration shaft 23, or the migration shaft 23.
[0021] 30 is the body of a control device of this printing machine, and performs ink key opening adjustment of the ink feeder 11, and the roll control of an impression cylinder 14, a printing cylinder 13, and the drive motor 25 which performs rotation of migration shaft 23 grade and a servo motor 24 based on the pattern information on the drawing data generation section 32. More specifically, the body 30 of a control unit consists of rate change control-section 30A which performs a rate change in the printing plate section and the non-printing plate section in response to the signal from printing cylinder encoder 12B about the rate fixed control section of the printing cylinder drive motor 25, 30B, and the migration shaft servo motor 24, as shown in drawing 1 (A). And a rate setup of said rate change control-section 30A is set up in an arithmetic circuit 28 by the amendment signal acquired from an amendment map based on a paper type, a plate class, etc.
[0022] From a user upstream system, return and the drawing data generation section 32 incorporate the image data (development data) of each color corresponding to drawing 2 , develop this in the shape of a bit map, and create raster-like drawing data. And said created drawing data are stored in the data server 31. And the drawing data written in the data server are serially written in based on a data clock, and are transmitted to the equipment controller 22 side.
[0023] Next, the part based on the starting configuration to which especially this invention corresponds is explained based on drawing 2 . First encoder 12B by the side of said plate cylinder shaft 12 for the angle-of-rotation detection means of a printing cylinder 13 moreover,

encoder 23B of migration shaft 23A in the beam write-in equipment 21 for platemaking The write-in equipment controller 22 at the passing speed detection means of the direction of vertical scanning for a timing detection means to detect the write-in timing to the printing plate for every one printing cylinder revolution period A speed-control means to write in with said printing cylinder based on the signal of said timing detection means, and to control the drive rate of equipment consists of the body 30 of a control device, a servo motor 24, and a drive motor 25 of a printing cylinder.

[0024] And although a rate change is performed in this example in case it shifts to said printing cylinder 13 printing plate section 13A (the printing plate section points out either of the printing plate locations where data are written in lithographic plate 130 location or this lithographic plate 130 wound around the printing cylinder 13 here.), and between the non-printing plate sections What is necessary is just to control fundamentally the width of face between Rhine of the direction of drawing Rhine of data (main scanning direction), and the direction (the direction of vertical scanning) which intersects perpendicularly, since the rate change is performed corresponding to the amount of fan-outs. And control of such a direction of vertical scanning can understand that what is necessary is just to change the passing speed of the write-in equipment 21 based on the migration shaft 23, maintaining uniformly the rotational speed of the data output clock from write-in equipment 21, and a printing cylinder with high precision, since migration control of the write-in equipment 21 is carried out in the direction of vertical scanning with the migration shaft 23.

[0025] And although the rate change to printing plate section 13A from said non-printing plate section 13B and the rotational-speed change of the migration shaft 23 from said printing plate section 13A to non-printing plate section 13B are performed by rate change control-section 30A within said body 30 of a control unit in this case, the Vertical Synchronizing signal which detects the write-in initiation / telophase timing to the printing plate which writes in for every one printing cylinder revolution period, and is obtained from a controller 22 -- you may carry out -- moreover, either of the angle-of-rotation phase pulses of printing cylinder encoder 12B -- a line -- **** -- it is good. Are good to perform the rate change to printing plate section 13A from the need of setting each write-in starting position for every especially printing cylinder rotation period on a printing plate as the same spacing with a sufficient precision in this invention based on a Vertical Synchronizing signal. On the other hand, the rate change to non-printing plate section 13B from said printing plate section 13A What is necessary is for special high degree of accuracy to be unnecessary, to change it the degree of ** by the angle-of-rotation phase pulse of printing cylinder encoder 12B, and just to perform it, since it is the rate change for returning the amount of delay delayed by printing plate section 13A based on the amount of fan-outs (accelerating).

[0026] Next, actuation of the operation gestalt of this invention is concretely explained based on drawing 1 and drawing 4 . That is, it takes for progressing to a termination side, the relative movement rate to the printing cylinder of said write-in equipment 21 is increased from the direction start edge side of vertical scanning of said printing cylinder by the printing plate section 13A side, and the rotational speed of a printing cylinder and the passing speed of the direction of vertical scanning of write-in equipment are controlled by each printing station to decrease by the non-printing plate section 13B side. The write-in equipment 21 which writes in data while moving the migration shaft 23 parallel to each plate cylinder shaft as an example at the rate of 10 mm/sec (rate of the direction of vertical scanning) Cyanogen, MAZENDA, yellow, and the printing station for every color of black (13 C) When arranged at 13M, 13Y, and 13B, while carrying out rate change of the relative movement rate to the printing cylinder of the write-in equipment 21 for said every station in inverse proportion between printing plate section 13A and non-printing plate section 13B turning the rate variation to the downstream and changing it one by one from the upstream of each station, -- a fan-out -- the aim between colors can be doubled, without using vice.

[0027] If whenever [acceleration-and-deceleration] is disregarded as shown in drawing 1 (B), and "printing plate section 13A" and the passing speed in "non-printing plate section 13B" By the line side at the beginning of the direction writing of vertical scanning in the direction of

"printing plate section 13A" =M-(alphan/2) mm/sec"non-printing plate section 13B" =M+(alphan) mm/sec vertical scanning central Rhine location the direction of "printing plate section 13A" =Mmm/sec"non-printing plate section 13B" =Mmm/sec vertical scanning last line side -- "printing plate section 13A" =M+(alphan/2) mm/sec"non-printing plate section 13B" =M-(alphan) mm/sec [0028] In this case, since it is expected that the amounts of fan-outs differ for every print sheet, as shown in drawing 1 (A), the aim gap resulting from a fan-out can be inhibited by being an arithmetic circuit 28 and computing the amount of amendments optimal from printing conditions at the time of a print-data store with the amendment data obtained from the amendment map 29 which dedicated the amendment data for every form. as shown in drawing 3 (B), supposing the pattern for example, on a printing plate is drawn in the form where it extended only 50 micrometers only of hips sides at a time in the direction of vertical scanning one by one in addition to every [of each color] printing station (13C, 13M, 13Y, 13B) -- 1st printing station 13C -- 50 micrometers and the 2nd -- it is necessary to extend 200 micrometers by 150 micrometers and 4th printing station 13B by printing station 13M at 100 micrometers and 3rd printing station 13Y And the printing cylinder perimeter of each of said station (13C, 13M, 13Y, 13B) of every is 900mm. Among those, if that a version exists rotates by 600mm and a printing cylinder rotates one time by 300msec(s) (main scanning direction) The time amount ratio of the main scanning direction between "printing plate section 13A" in which the printing plate in a printing cylinder exists, and "non-printing plate section 13B" equivalent to the part in which the version in a printing cylinder does not exist presupposes that it is 200msec/"100msec" =2/1.

[0029] In addition, at the 1st station, as shown, for example in drawing 4 , when said M is 10 mm/sec, it sets up at alpha1:0.25 mm/sec and the 2nd station so that alpha2:0.5 mm/sec and the 3rd station may make alpha3:0.75 mm/sec and it may be made alpha4:1 mm/sec at the 4th station. More specifically at the beginning of the direction writing of vertical scanning in the 2nd station in a line side In "printing plate section 13A" =9.5 mm/sec and the direction of "non-printing plate section 13B" =11 mm/sec vertical scanning central Rhine location In "printing plate section 13A" =10 mm/sec and the direction of "non-printing plate section 13B" =10 mm/sec vertical scanning last line side, the speed is gradually controlled for every rotation in the direction of vertical scanning so that it may become "printing plate section 13A" =10.5 mm/sec and "non-printing plate section 13B" =9 mm/sec. Thereby, in spite of said rate change, the write-in starting position for every printing cylinder rotation can perform strict rate & position control so that the spacing always same on a printing plate may be maintained.

[0030] As this shows drawing 4 , Rhine spacing of the direction of vertical scanning for every rotation period by the side of the main scanning direction start edge of the printing plate of each printing station is set up so that it may become fixed with m. On the other hand, Rhine spacing of the direction of vertical scanning for every rotation period by the side of main scanning direction termination drawing initiation Rhine -- the amount of inclinations -- (-- n-alpha: -- the 1st station and n-2alpha: -- in the 2nd station, --), and drawing central Rhine the amount of inclinations -- (-- n: -- the 1st station and n: -- in the 2nd station, --), and drawing last Rhine, the amount of inclinations can be set up so that it may be set to m (n+alpha: the 1st station, n+2alpha: the 2nd station, --).

[0031] In addition, by this method, although it adds strictly, it adds a head side and spacing of a dot differs partly by the hips side, since the amount is small enough (printing cylinder right-and-left width of face is expanded 900mm, and the clearance between 200micro, then the drawing pattern for every printing cylinder rotation is set to =(200 micrometerm/10 mm/sec/300msec) 0.7micro in an amount.), it does not pose a problem.

[0032]

[Effect of the Invention] According to invention claim 1 and given in two, **** which can be made to be able to respond to the fan-out of a print sheet, and can make dot aim in agreement easily can be obtained like a publication above. Moreover, also when the amounts of fan-outs differ for every printing station of each color, the pattern of each color printed the whole printing station can be made to be able to respond to each fan-out, and the aim between colors can be easily made in agreement according to invention claim 3 and given in three.

[0033] According to invention according to claim 5, said effectiveness can be attained much more with high precision.

[Translation done.]

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] The control-block Fig. which (A) requires for the important section configuration of this invention, and (B) are the timing diagram Fig.
[Drawing 2] Drawing 2 is the outline block diagram of the on-board platemaking equipment concerning the operation gestalt of this invention.
[Drawing 3] (A) shows the schematic diagram and its write-in condition of raster-data write-in equipment. (B) shows the fan-out condition of the print sheet for every printing station.
[Drawing 4] The drawing speed on the printing cylinder concerning the example of this invention is shown.
[Drawing 5] When [of said printing cylinder] a center position is mostly carried out as a criteria rate (mean velocity Av), a write-in equipment location shows increase-and-decrease the variation of a rate by the side of printing plate section relative velocity and non-printing plate section relative velocity in each location of actuation one end from drive one end.
[Description of Notations]
12 Plate Cylinder Shaft
12B Printing cylinder encoder
13 Printing Cylinder
13A Printing plate section
13B Non-printing plate section
21 Beam Write-in Equipment for Platemaking
22 Write-in Equipment Controller
23A Migration shaft
23B Encoder
24 Servo Motor
25 Drive Motor
30 Body of Control Unit

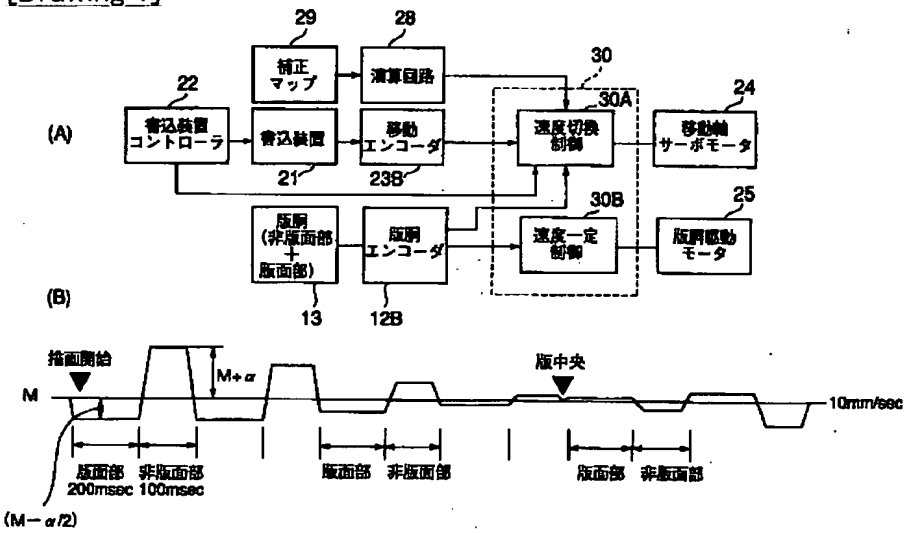
[Translation done.]

* NOTICES *

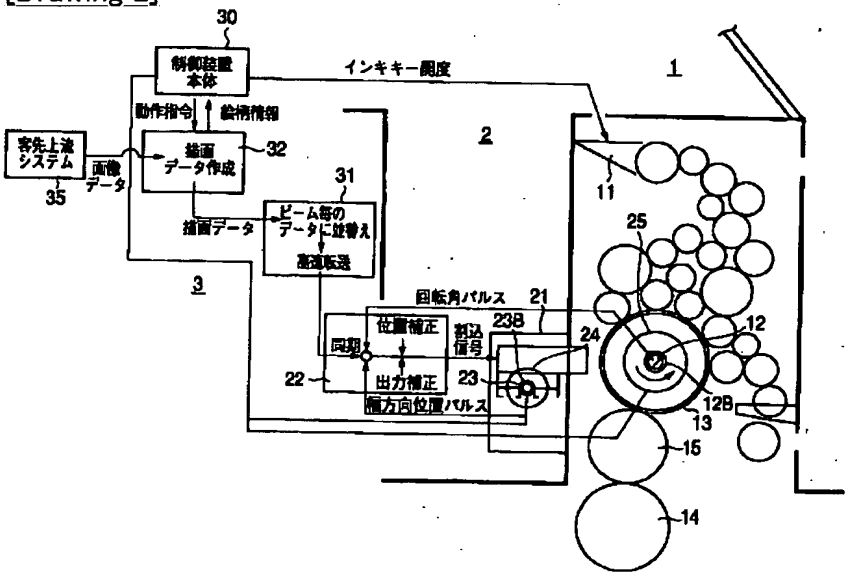
1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DRAWINGS

[Drawing 1]

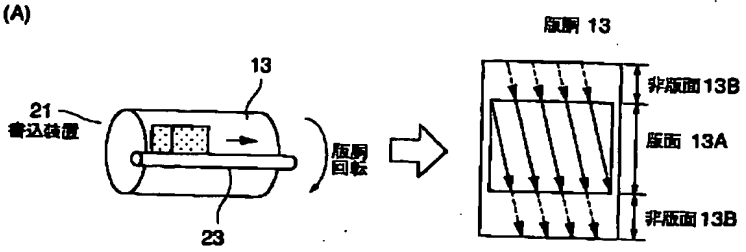


[Drawing 2]

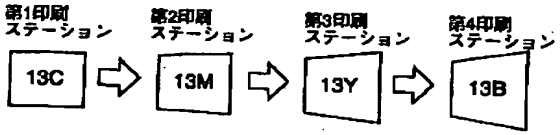


[Drawing 3]

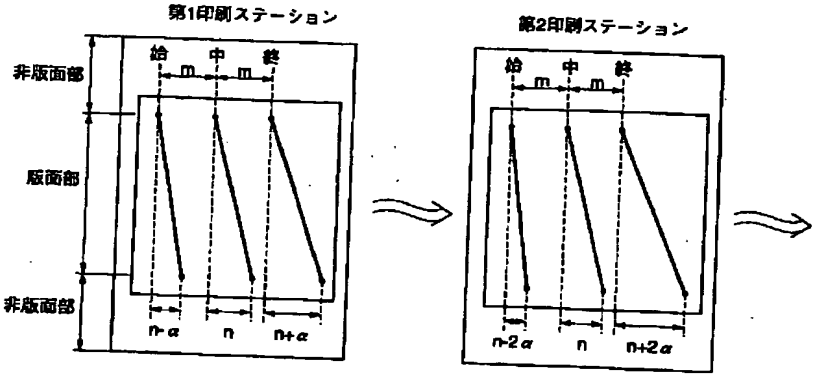
(A)



(B)



[Drawing 4]



[Drawing 5]

書込装置位置	駆動端+10	駆動端+100	中央	操作端+100	操作端+10
版面部相対速度	Av-100	Av-90	Av±0	Av+90	Av+100
非版面部相対速度	Av+250	Av+215	Av±0	Av-215	Av-250

[Translation done.]

(19)日本国特許庁（ＪＰ）　(12)**公開特許公報**（Ａ）　(11)特許出願公開番号
特開2001－88267
（P2001－88267A）
(43)公開日　平成13年４月３日(2001.4.3)

(51)Int.Cl.⁷	識別記号	ＦＩ		テーマコード（参考）
Ｂ４１Ｃ　1/055	５０１	Ｂ４１Ｃ　1/055	５０１	２Ｃ０３４
Ｂ４１Ｆ　7/02		Ｂ４１Ｆ　7/02	Ｚ	２Ｃ２５０
33/08		33/08	Ｓ	２Ｈ０８４

審査請求　未請求　請求項の数６　ＯＬ　（全８頁）

(21)出願番号　特願平11－271434

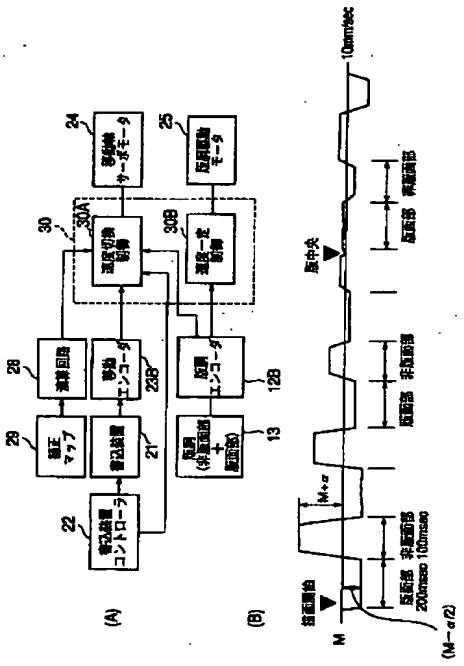
(22)出願日　平成11年９月24日(1999.9.24)

(71)出願人　000006208
三菱重工業株式会社
東京都千代田区丸の内二丁目５番１号
(72)発明者　加地　誠
広島県三原市糸崎町5007番地　三菱重工業株式会社三原製作所内
(74)代理人　100083024
弁理士　高橋　昌久　（外１名）

Ｆターム(参考)　2C034 AA12 AB10 BA02
2C250 EA10
2H084 AA14 AE05 CC05

(54)【発明の名称】　機上製版枚葉式印刷機

(57)【要約】
【課題】　各色の印刷ステーション毎にファンアウト量が異なる場合にも、各印刷ステーション毎で印刷された各色の絵柄を、夫々のファンアウトに対応させて容易に色間見当を一致させることの出来る機上製版枚葉式印刷機の提供。
【解決手段】　機上製版枚葉式印刷機において、書込装置のビーム出力タイミングに同期させて前記版胴の回転速度と書込装置の移動速度を夫々制御可能に構成した制御手段を設け、前記版胴の副走査方向始端側より終端側に進むに連れ、前記書込装置の版胴に対する相対的移動速度を版面部１３Ａ側で増加し、非版面部１３Ｂ側で減少するように、版胴の回転速度と書込装置の副走査方向の移動速度を制御したことを特徴とし、更に前記各ス色のテーション毎の書込装置の版胴に対する相対的移動速度を版面部１３Ａと非版面部１３Ｂ間で逆比例的に速度変化させるとともに、その速度変化量を、各ステーションの上流側より下流側に向け順次異ならせる。



1

【特許請求の範囲】

【請求項１】　周面に版面部と非版面部とが存在する版胴に対面しながら該版胴軸と平行（副走査方向）に移動可能な製版用ビーム書込装置を備えてなる機上製版枚葉式印刷機において、

前記書込装置のビーム出力タイミングに同期させて前記版胴の回転速度と書込装置の移動速度を夫々制御可能に構成した制御手段を設け、

版面上における版胴回転周期毎の各書込み開始位置を同一間隔に設定するとともに、前記版胴の副走査方向始端側より終端側に進むに連れ、前記書込装置の版胴に対する相対的移動速度を版面部と非版面部間でほぼ逆比例的に速度が変化するように、版胴の回転速度と書込装置の副走査方向の移動速度を制御したことを特徴とする機上製版枚葉式印刷機。

【請求項２】前記書込装置の版胴に対する相対的移動速度を版面部側で増加し、非版面部側で減少するように、版胴の回転速度と書込装置の副走査方向の移動速度を制御したことを特徴とする請求項１記載の機上製版枚葉式印刷機。

【請求項３】前記版胴のほぼ中心位置を基準速度として境に、前記書込装置の版胴に対する相対的移動速度の増減速バランスを異ならせたことを特徴とする請求項２記載の機上製版枚葉式印刷機。

【請求項４】前記製版用ビーム書込装置を各色の印刷ステーション毎に備えてなる請求項１記載の機上製版枚葉式多色印刷機において、

前記各ステーション毎の書込装置の版胴に対する相対的移動速度を版面部と非版面部間で逆比例的に速度変化させるとともに、その速度変化量を、各ステーションの上流側より下流側に向け順次異ならせたことを特徴とした機上製版枚葉式印刷機。

【請求項５】請求項１記載の機上製版枚葉式印刷機において、

版胴の回転角検出手段と、製版用ビーム書込装置における副走査方向の移動速度検出手段と、版胴一回転周期毎の版面への書込みタイミングを検知するタイミング検知手段と、前記タイミング検知手段の信号に基づいて前記版胴若しくは書き込み装置の少なくとも一方の駆動速度を制御する速度制御手段を備え、前記タイミング検知手段の検知信号に基づいて、前記速度制御手段を切り替えて前記書込装置の版胴に対する相対的移動速度を版面部と非版面部間で逆比例的に速度が変化するように制御したことを特徴とする機上製版枚葉式印刷機。

【請求項６】前記非版面部から版面部への速度切り替え、及び前記版面部から非版面部への速度切り替えは、版胴一回転周期毎の版面への書込み開始／終期タイミングを検知するタイミング検知手段よりの検知信号若しくは、版胴の回転角検出手段よりの検知信号に基づいて行うことを特徴とする請求項４記載の機上製版枚葉式印刷機。

2

【発明の詳細な説明】

【０００１】

【発明の属する技術分野】本発明は、印刷機上で版胴上に巻回された版に製版を行う機上製版枚葉式印刷機に係り、特に印刷するインキ各色毎に版胴と圧胴を含む複数の印刷機本体を具えた機上製版枚葉式印刷機に関する。

【０００２】

【従来の技術】従来より積層状態にある印刷用紙を一枚ずつくわえて加速しながら印刷機本体側に受け渡す給紙装置と、印刷終了後の印刷用紙を積層収納する排紙装置と、該給紙装置と排紙装置間に配設され、インキ供給装置より版胴に巻回されている刷版の絵柄部分にシアン、マゼンダ、イエロー若しくはブラックの対応するインキを転移させ、該インキを圧胴上に搬送されている印刷用紙に順次転移する枚葉式印刷機械は公知であり、かかる印刷機械には、シアン、マゼンダ、イエロー及びブラックの各色毎に、版胴と圧胴を含む４つの印刷ステーションを具え、前記各色を順次転移するステーション型印刷機が（特表平６－５０７３５３等）が主流である。

【０００３】そしてこのような印刷機の内、特にオフセット印刷機においては、湿し水を使用するために、印刷用紙の含有水分や表面性の不均一により、一般に用紙のくわえじりの印刷画像が扇状に拡がるファンアウト現象が生じる。然も多印刷ステーション型の印刷機においては、給紙部より供給された印刷用紙の先端を圧胴の爪で保持しながら中間胴を介して順次、次の印刷ステーションに受け渡しさせながら搬送するものであるために、各ステーション毎でファンアウト量が異なる。

【０００４】より具体的には第１印刷ステーション１３Ｃ（例えばシアン）、第２印刷ステーション１３Ｍ（例えばマゼンダ）、第３印刷ステーション１３Ｙ（例えばイエロー）及び第４印刷ステーション１３Ｂ（例えばブラック）に進むにつれ用紙の尻が順に徐々に拡がる。（図３（Ｂ）参照）

【０００５】一方上記印刷機に用いる刷版は、従来から別の所で作成されたものを、印刷機の版胴に取り付けているが、近年刷版焼付精度向上による刷出し時間の短縮、印刷品質の向上、損紙の低減などの目的で、各印刷ステーションの版胴に夫々対面配置させた製版装置により、版胴表面に取り付けられた未露光の刷材に前記製版装置を利用して印刷機上で印刷絵柄を露光･現像する機上製版装置が存在する。

【０００６】そしてこのような製版装置は、移動軸２３により版胴１３と平行に移動するレーザ等のビーム書込装置を用いて画像信号を版材に記録するもので、書込装置２２より出力される露光信号（ラスターデータ）の出力タイミングに合わせて版胴１３の同期回転（主走査方向）と移動軸２３による書込装置２１の軸方向（副走査方向）の移動を行いながら、露光書込を行うものである

ために、版胴１３に巻き付けた版面１３Ａに書き込まれる絵柄（ビットデータ）はスパイラル状に斜め方向に書き込まれることになる。（図３（Ａ）参照）

【０００７】一方、前記版面上に書き込まれる絵柄は前記ラスターデータを可能な限り忠実に再現する事を原則としているために、原稿元データと同一縮尺となる。

【０００８】

【発明が解決しようとする課題】即ち、各印刷ステーション毎にファンアウト量が異なるにも拘わらず、同一縮尺で版面が作成されるために、各印刷ステーション毎で印刷された各色の絵柄は、夫々のファンアウト分だけ色間見当がずれる結果になる。

【０００９】かかる色間見当のずれを補正するために、従来はファンアウト万力を用いて前記刷板の尻側を引き延ばし、色間見当を合せるようにしているが、前記ファンアウト量に対応する尻拡げ量は版胴左右幅が９００ｍｍの場合、その拡げ量が最大２００μｍ前後と極めて少ないために、その調整に熟練を要す。

【００１０】本発明はかかる技術的課題に鑑み、シアン、マゼンダ、イエロー及びブラック等の各色の印刷ステーション毎にファンアウト量が異なる場合にも、各印刷ステーション毎で印刷された各色の絵柄を、夫々のファンアウトに対応させて容易に色間見当を一致させることの出来る機上製版印刷機を提供することを目的とする。

【００１１】

【課題を解決するための手段】本発明はかかる課題を解決するために、請求項１記載の発明は、 周面に版面部と非版面部とが存在する版胴に対面しながら該版胴軸と平行（副走査方向）に移動可能な製版用ビーム書込装置を備えてなる機上製版枚葉式印刷機において、前記書込装置のビーム出力タイミングに同期させて前記版胴の回転速度と書込装置の移動速度を夫々制御可能に構成した制御手段を設け、版面上における版胴回転周期毎の各書込み開始位置を同一間隔に設定するとともに、前記版胴の副走査方向始端側より終端側に進むに連れ、前記書込装置の版胴に対する相対的移動速度を版面部と非版面部間でほぼ逆比例的に速度が変化するように、版胴の回転速度と書込装置の副走査方向の移動速度を制御したことを特徴とする。この場合、上記移動速度を制御するための補正量は、ファンアウトの物理量を補正するために行われるもので、必ずしも一次関数で近似できるものとは限らず、複次関数若しくはファンアウトの物理量に対応したテーブルを用いて補正量を決定しても良い。

【００１２】即ち、より具体的には請求項２記載の発明のように、前記書込装置の版胴に対する相対的移動速度を版面部側で増加し、非版面部側で減少するように、版胴の回転速度と書込装置の副走査方向の移動速度を制御してもよく、その逆でも良い。更に前記相対的移動速度の増速／減速のバランスは書き込み装置が版胴の中心より駆動側（主走査方向始端側）か操作端側（主走査方向終端）かによって異なる。即ち図５に示すように、前記版胴のほぼ中心位置を基準速度（平均速度Ａｖ）としてした場合、書き込み装置位置が「駆動端＋１０」、「駆動端＋１００」「中央」「操作端＋１０」「操作端＋１００」との夫々の位置において、その増減速変化量は、版面部相対速度側においては、「Ａｖ－１００」、「Ａｖ－１０」、「Ａｖ±０」、「Ａｖ＋１０」「Ａｖ＋１００」のように変化し、一方非版面部相対速度側においては、「Ａｖ＋２５０」、「Ａｖ＋２１５」、「Ａｖ±０」、「Ａｖ－２１５」「Ａｖ－２５０」のように変化する。請求項３記載の発明は、かかる点を特定したもので前記版胴のほぼ中心位置を基準速度として境に、前記書込装置の版胴に対する相対的移動速度の増減速バランスを異ならせたことを特徴とする。

【００１３】請求項４記載の発明は、前記製版用ビーム書込装置を各色の印刷ステーション毎に備えてなる請求項１記載の機上製版枚葉式多色印刷機に適用させるもので、前記各ステーション毎の書込装置の版胴に対する相対的移動速度を版面部と非版面部間で逆比例的に速度変化させるとともに、その速度変化量を、各ステーションの上流側より下流側に向け順次異ならせた事を特徴とする。

【００１４】請求項５記載の発明は、請求項１記載の機上製版枚葉式印刷機における具体的な構成を示すもので、版胴の回転角検出手段と、製版用ビーム書込装置における副走査方向の移動速度検出手段と、版胴一回転周期毎の版面への書込みタイミングを検知するタイミング検知手段と、前記タイミング検知手段の信号に基づいて前記版胴若しくは書き込み装置の少なくとも一方の駆動速度を制御する速度制御手段を備え、前記タイミング検知手段の検知信号に基づいて、前記速度制御手段を切り替えて前記書込装置の版胴に対する相対的移動速度を版面部と非版面部間で逆比例的に速度が変化するように制御したことを特徴とする。

【００１５】請求項６記載の発明は、前記発明の切り替えタイミング部分を具体化したもので、例えば前記非版面部から版面部への速度切り替えは、版胴一回転周期毎の版面への書込み開始タイミングを検知するタイミング検知手段よりの検知信号に基づいて行い、又前記版面部から非版面部への速度切り替えは、版胴の回転角検出手段よりの検知信号に基づいて行うことを特徴とする。

尚、本発明のタイミング切り替えは、必ずしも前記構成のみに限定されるものではなく、前記非版面部から版面部への速度切り替えも、版胴の回転角検出手段よりの検知信号に基づいて行ってもよく、又前記版面部から非版面部への速度切り替えは版胴一回転周期毎の版面への書込み終期タイミングを検知するタイミング検知手段よりの検知信号に基づいて行ってもよい。

【００１６】

5

【発明の実施の形態】以下、本発明を図に示した実施例を用いて詳細に説明する。但し、この実施例に記載される構成部品の寸法、形状、その相対配置などは特に特定的な記載がない限り、この発明の範囲をそれのみに限定する趣旨ではなく単なる説明例に過ぎない。

【００１７】図２は本発明の実施形態にかかる機上製版装置の概略構成図で、１は、インキ供給装置１１より版胴１３に巻回されている刷版１３０の絵柄部分にインキを転移させ、該インキを圧胴１４上に搬送されている印刷用紙に転移する印刷機本体１で、シアン、マゼンダ、イエロー及びブラックの各色毎の印刷機ステーション１が直列状に並んでおり、中間胴を挟んで次の印刷機本体１の圧胴１４に印刷用紙を搬送しながら４色の印刷を行うように構成されている。

【００１８】シアン、マゼンダ、イエロー及びブラックの各色毎の印刷機本体１は、対応する色のインキ供給装置１１、刷板１３０を巻装させた版胴１３、版胴１３に対面配置させた製版装置２、インキ供給装置１１より刷版１３０の絵柄部分に転移させたインキをゴム胴１５を介して圧胴１４に転移し、供給された印刷用紙を圧胴６上でゴム胴５からインキをうけて印刷が行われる。一方上記刷版１２は、版胴１３に対面配置させた製版装置２により、版胴１３表面、若しくは版胴１３表面に取り付けられた未露光の刷板１３０に前記製版装置２を利用して印刷機上で印刷絵柄を露光･現像するもので、レーザ書込装置２１と、該書込装置２１をコントロールする書き込み装置コントローラ２２よりなる。

【００１９】版胴１３に対面する書込装置２１はレーザを用いてラスターデータに対応するドットパターンを刷版１３０に焼き付けるもので、レーザ露光装置、現像装置、定着装置などで構成され、そして上記製版モードで未露光刷板１３０に露光する場合、露光信号出力タイミングに合わせて版胴１３の同期回転と前記書込装置２１を支持している移動軸２３の回転により前記書込装置２１を副走査方向（版胴軸１２方向と平行な方向）に移動させながら露光するものである。この時精度の良い版面１３Ａのドットパターンを得るために、版胴１３の回転パルスと前記移動軸２３の幅方向位置パルスを書込装置コントローラ２２側で取り込んで、制御装置３内のデータサーバ３１よりシリアルに読み出された描画データ（ラスターデータ）と同期をとってその位置補正と出力補正を行いながら前記書込装置２１内の半導体レーザ発信器に出力する。

【００２０】尚、図１（Ａ）及び図２に示すように、版胴１３の回転角パルス（回転位相角）は、版胴軸１２に取り付けた版胴駆動モータ２５の軸端に設けた版胴エンコーダ１２Ｂよりの回転角信号により高精度に取得され、又前記移動軸２３の幅方向位置パルス（副走査方向）は前記移動軸２３の軸端若しくは移動軸２３を駆動するサーボモータ２４等の軸端に設けたエンコーダ２３

6

Ｂの回転数と回転位相角により高精度に取得される。

【００２１】３０は本印刷機の制御装置本体で、描画データ生成部３２よりの絵柄情報に基づいてインキ供給装置１１のインキキー開度調整と圧胴１４や版胴１３、移動軸２３等の回転を行う駆動モータ２５やサーボモータ２４の回転制御を行う。より具体的には、制御装置本体３０は、図１（Ａ）に示すように、版胴駆動モータ２５の速度一定制御部と３０Ｂ、移動軸サーボモータ２４について、版胴エンコーダ１２Ｂよりの信号を受けて版面部と非版面部で速度切り替えを行う速度切り替え制御部３０Ａよりなる。そして前記速度切り替え制御部３０Ａの速度設定は、紙種や版材種類等に基づいて補正マップより得られる補正信号により演算回路２８で設定される。

【００２２】図２に戻り、描画データ生成部３２は、客先上流システムより対応する各色の画像データ（現像データ）を取り込んで、これをビットマップ状に展開してラスター状の描画データを作成する。そして前記作成された描画データは、データサーバ３１に蓄えられる。そしてデータサーバに書き込まれた描画データはデータクロックに基づいてシリアルに書き込み装置コントローラ２２側に送信される。

【００２３】次にかかる構成に基づく、特に本発明の対応する部分を図２に基づいて説明する。先ず前記版胴軸１２側のエンコーダ１２Ｂは版胴１３の回転角検出手段に、又製版用ビーム書込装置２１における移動軸２３Ａのエンコーダ２３Ｂは、副走査方向の移動速度検出手段に、書き込み装置コントローラ２２は版胴一回転周期毎の版面への書込みタイミングを検知するタイミング検知手段に、前記タイミング検知手段の信号に基づいて前記版胴と書き込み装置の駆動速度を制御する速度制御手段は制御装置本体３０、サーボモータ２４及び版胴の駆動モータ２５からなる。

【００２４】そして本実施例においては、前記版胴１３には版面部１３Ａ（ここで版面部とは版胴１３に巻回された刷版１３０位置若しくは該刷版１３０にデータが書き込まれる版面位置のいずれか一方を指す。）と非版面部相互間に移行する際に、速度切り替えが行われるが、その速度切り替えはファンアウト量に対応して行われるために、基本的にはデータの描画ライン方向（主走査方向）と直交する方向（副走査方向）のライン間の幅を制御すればよい。そしてこのような副走査方向の制御は、書き込み装置２１が移動軸２３により副走査方向に移動制御されているために、書き込み装置２１よりのデータ出力クロックと版胴の回転速度を高精度に一定に維持しつつ、移動軸２３に基づく書き込み装置２１の移動速度を変化させればよいことが理解できる。

【００２５】そして前記非版面部１３Ｂから版面部１３Ａへの速度切り替え、及び前記版面部１３Ａから非版面部１３Ｂへの移動軸２３の回転速度切り替えは前記制御

装置本体３０内の速度切り替え制御部３０Ａにより行われるが、この場合、、版胴一回転周期毎に書き込みコントローラ２２より得られる版面への書込み開始／終期タイミングを検知する垂直同期信号等により行ってもよく、又、版胴エンコーダ１２Ｂの回転角位相パルスのいずれから行っても良い。特に本発明では、版面上における版胴回転周期毎の各書込み開始位置を同一間隔に設定する必要から版面部１３Ａへの速度切り替えは垂直同期信号に基づいて精度良く行うのがよく、一方、前記版面部１３Ａから非版面部１３Ｂへの速度切り替えは、ファンアウト量に基づいて版面部１３Ａで遅延（増速）した遅延量を戻すための速度切り替えであるために、特別な高精度は必要なく、版胴エンコーダ１２Ｂの回転角位相パルスにより速度切り替え行えばよい。

【００２６】次に本発明の実施形態の動作を図１及び図４に基づいて具体的に説明する。即ち、各印刷ステーションでは、前記版胴の副走査方向始端側より終端側に進むに連れ、前記書込装置２１の版胴に対する相対的移動速度を版面部１３Ａ側で増加し、非版面部１３Ｂ側で減少するように、版胴の回転速度と書込装置の副走査方向の移動速度を制御する。例として夫々の版胴軸と平行な移動軸２３を１０㎜／ｓｅｃの速度（副走査方向の速度）で移動しながらデータを書き込む書込装置２１がシアン、マゼンダ、イエロー及びブラックの各色毎の印刷ステーション（１３Ｃ、１３Ｍ、１３Ｙ、１３Ｂ）に配置されている場合、前記各ステーション毎の書込装置２１の版胴に対する相対的移動速度を版面部１３Ａと非版面部１３Ｂ間で逆比例的に速度変化させるとともに、その速度変化量を、各ステーションの上流側より下流側に向け順次異ならせることによりファンアウト万力を用いずに、色間見当を合せることができる。

【００２７】そして図１（Ｂ）に示すように、、加減速度を無視すれば、「版面部１３Ａ」と、「非版面部１３Ｂ」における移動速度は、副走査方向書き始めライン側では、

「版面部１３Ａ」＝Ｍ－（αｎ／２）ｍｍ／ｓｅｃ

「非版面部１３Ｂ」＝Ｍ＋（αｎ）ｍｍ／ｓｅｃ

副走査方向中央ライン位置では、

「版面部１３Ａ」＝Ｍｍｍ／ｓｅｃ

「非版面部１３Ｂ」＝Ｍｍｍ／ｓｅｃ

副走査方向最終ライン側では、

「版面部１３Ａ」＝Ｍ＋（αｎ／２）ｍｍ／ｓｅｃ

「非版面部１３Ｂ」＝Ｍ－（αｎ）ｍｍ／ｓｅｃ

【００２８】この場合、印刷用紙毎にファンアウト量は異なると予想されるので、図１（Ａ）に示すように、用紙毎の補正データを納めた補正マップ２９より得られた補正データにより演算回路２８で、印刷データ書込時に印刷条件から最適な補正量を算出することでファンアウトに起因する見当ずれを抑止することができる。例えば版面上の絵柄は図３（Ｂ）に示すように各色の印刷ステーション（１３Ｃ、１３Ｍ、１３Ｙ、１３Ｂ）毎にくわえ尻側だけ順次５０μｍずつ副走査方向に伸びた形で描画されるとすると、第１印刷ステーション１３Ｃでは５０μｍ、第２印刷ステーション１３Ｍでは１００μｍ、第３印刷ステーション１３Ｙでは１５０μｍ、第４印刷ステーション１３Ｂでは２００μｍ広げる必要がある。そして前記各ステーション（１３Ｃ、１３Ｍ、１３Ｙ、１３Ｂ）毎の版胴周長は９００ｍｍで、そのうち版が存在するのは６００ｍｍ、版胴は３００ｍｓｅｃ（主走査方向）で１回転すると、版胴中の版面が存在する「版面部１３Ａ」と、版胴中の版が存在しない部分にあたる「非版面部１３Ｂ」との間の主走査方向の時間比が、「２００ｍｓｅｃ／１００ｍｓｅｃ」＝２／１であるとする。

【００２９】尚、例えば図４に示すように、前記Ｍが１０ｍｍ／ｓｅｃの場合、第１ステーションではα１：０．２５ｍｍ／ｓｅｃ、第２ステーションではα２：０．５ｍｍ／ｓｅｃ、第３ステーションではα３：０．７５ｍｍ／ｓｅｃ、第４ステーションではα４：１ｍｍ／ｓｅｃとなるように設定する。より具体的には、例えば第２ステーションにおける副走査方向書き始めライン側では、

「版面部１３Ａ」＝９．５ｍｍ／ｓｅｃ、「非版面部１３Ｂ」＝１１ｍｍ／ｓｅｃ

副走査方向中央ライン位置では、

「版面部１３Ａ」＝１０ｍｍ／ｓｅｃ、「非版面部１３Ｂ」＝１０ｍｍ／ｓｅｃ

副走査方向最終ライン側では、

「版面部１３Ａ」＝１０．５ｍｍ／ｓｅｃ、「非版面部１３Ｂ」＝９ｍｍ／ｓｅｃ

となるように副走査方向の速度制御を徐々に１回転毎に行う。これにより前記速度変化にも関わらず、版胴回転毎の書込み開始位置は常に版面上で同じ間隔を維持するように厳密な速度＆位置制御を行う事が出来る。

【００３０】これにより図４に示すように、各印刷ステーションの版面の主走査方向始端側の各回転周期毎の副走査方向のライン間隔はｍと一定になるように設定し、一方主走査方向終端側の各回転周期毎の副走査方向のライン間隔は、描画開始ラインでは、その傾き量は（ｎ－α：第１ステーション、ｎ－２α：第２ステーション、…）、描画中央ラインでは、その傾き量は（ｎ：第１ステーション、ｎ：第２ステーション、…）、描画最終ラインでは、その傾き量は（ｎ＋α：第１ステーション、ｎ＋２α：第２ステーション、…）ｍとなるように設定することができる。

【００３１】尚、本方式では、厳密にはくわえ頭側とくわえ尻側でドットの間隔が一部で異なるが、その量は充分にちいさい（版胴左右幅を９００ｍｍ、広げ量を２００μとすれば、版胴回転毎の描画絵柄の隙間は、（２００μｍｍ÷１０ｍｍ／ｓｅｃ÷３００ｍｓｅｃ）＝０．

７μとなる。）ために問題とならない。

【００３２】

【発明の効果】以上記載のごとく請求項１及び２記載の発明によれば、印刷用紙のファンアウトに対応させて容易にドット見当を一致させることの出来る刷板を得ることが出来る。又請求項３及び３記載の発明によれば、各色の印刷ステーション毎にファンアウト量が異なる場合にも、各印刷ステーション毎で印刷された各色の絵柄を、夫々のファンアウトに対応させて容易に色間見当を一致させることの出来る。

【００３３】請求項５記載の発明によれば、前記効果を一層高精度に達成できる。

【図面の簡単な説明】

【図１】　（Ａ）は本発明の要部構成に係る制御ブロック図、（Ｂ）はそのタイムチャート図である。

【図２】　図２は本発明の実施形態にかかる機上製版装置の概略構成図である。

【図３】　（Ａ）はラスターデータ書き込み装置の概略図とその書き込み状態を示す。（Ｂ）は各印刷ステーション毎の印刷用紙のファンアウト状態を示す。

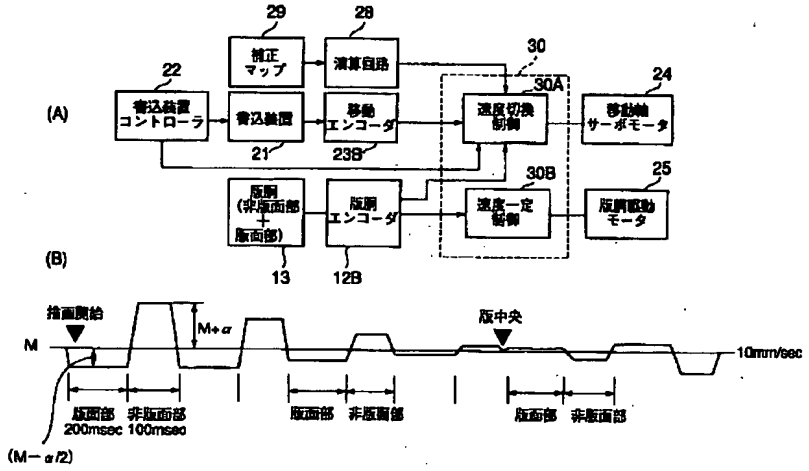
＊【図４】　本発明の実施例に係る版胴上における書き込み速度を示す。

【図５】前記版胴のほぼ中心位置を基準速度（平均速度Ａｖ）としてした場合、書き込み装置位置が駆動端側より操作端側の夫々の位置において、版面部相対速度側と非版面部相対速度側の増減速度変化量を示す。

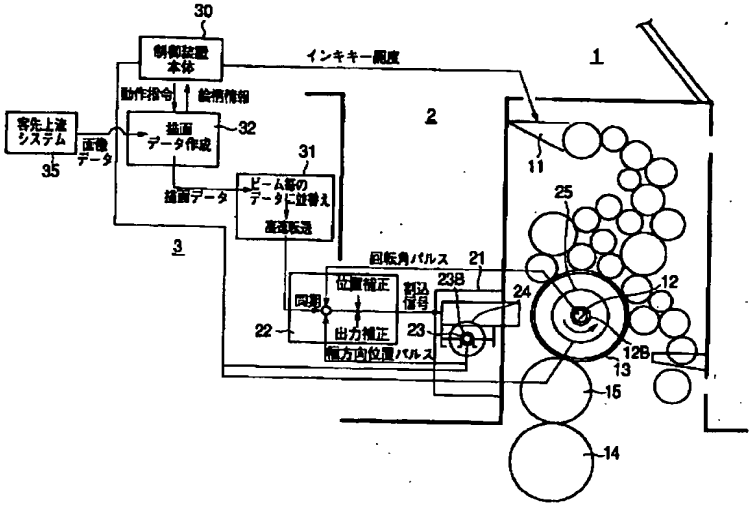
【符号の説明】

１２	版胴軸
１２Ｂ	版胴エンコーダ
１３	版胴
１３Ａ	版面部
１３Ｂ	非版面部
２１	製版用ビーム書込装置
２２	書き込み装置コントローラ
２３Ａ	移動軸
２３Ｂ	エンコーダ
２４	サーボモータ
２５	駆動モータ
３０	制御装置本体

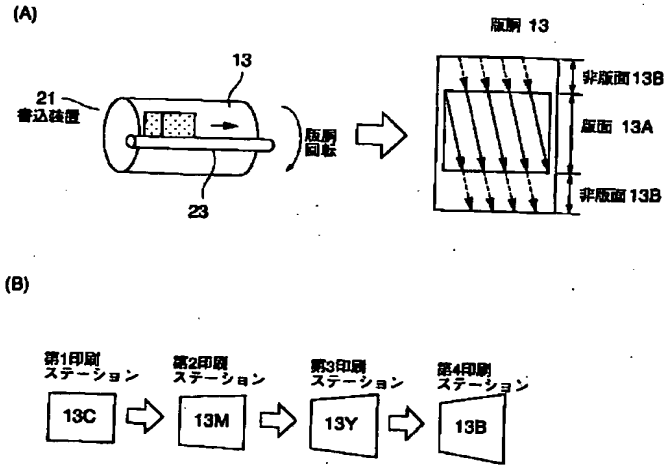
【図１】



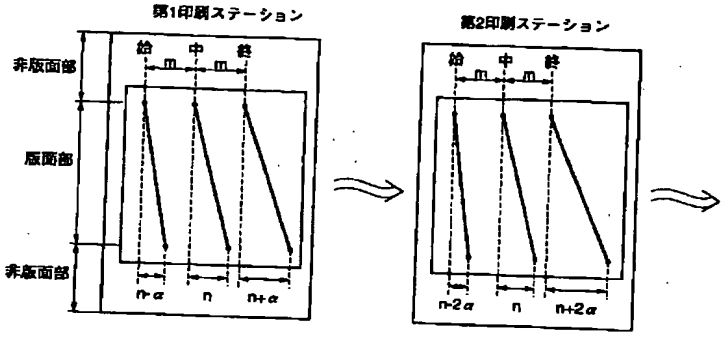
【図２】


30
制御装置本体
インキキー開度
1
動作指令
絵柄情報
2
受先上流システム
35
画像データ
描画データ作成
32
31
描画データ
ビーム毎のデータに並替え
高速転送
3
回転角パルス
21
位置補正
同期
出力補正
22
23
23B
書込信号
24
12
12B
13
15
14
11
25
版胴方向位置パルス

【図３】


(A)
版胴 13
13
21
書込装置
23
版胴回転
非版面13B
版面 13A
非版面13B
(B)
第1印刷ステーション
第2印刷ステーション
第3印刷ステーション
第4印刷ステーション
13C
13M
13Y
13B

【図４】



【図５】

書込装置位置	駆動端+10	駆動端+100	中央	操作端+100	操作端+10
版面部相対速度	Av-100	Av-90	Av±0	Av+90	Av+100
非版面部相対速度	Av+250	Av+215	Av±0	Av-215	Av-250